

Work Order ID 50827

July 23, 2009 6:45:20 AM

Page 1

Item ID: D212-664-201B

Accept

Revision ID: A

Item Name: Crosstube Aft High,214

Start Date: 07/23/2009 Start Qty: 1.00

Required Date: 07/27/2009 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Approvals: Process Plan: *MF*

Date: 09-07-23 Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D212-664-241	Rev. C
DEO D212-664-241-C-1	Rev. C

100

0.00



DC

Document Control

DOCUMENT CONTROL

Memo

Photocopy bluefile and DSI 9445 and create labels as per PPP D212-664-201B CHG001

5 09/08/13

110

Pick Kit

0.00



Packaging

Packaging

Memo

0.00

Packaging

(1)

mo 09/08/13

120

0.00



CNC Bend 2

BENDING MACHINE - CROSSTUBES

Memo

Bend tube as per Dwg D212-664-241 using CNC bender program 212-af and Folio FT007

0.00

CNC Alpha 160 Bender

9-8-6

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
09-08-11	W/O header	Add DEO to dwg box. To more specify the 'B' model Assembly perm change	IE	09.09.02		090812	090812	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 50827

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Revision ID: A

Stop



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Start Date: 07/23/2009 Start Qty: 1.00



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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

QC15- Crosstube Dimensional Check

0.00



QC

Memo

IP 09.08.06

0.00

Quality Control

140

Crosstubes

0.00



Crosstubes

Memo

0.00

Crosstubes

1-Drill pilot holes in tube as per Dwg D212-664-241 using drill Jig DT8550 & DT8551

2-Ream hole to finish size in tube as per Dwg D212-664-241 using drill Jig DT8550 & DT8551. Check dimensions between holes, both sides on both cuffs, to ensure alignment with saddle holes.

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-241

4-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-241

U 9-8-7 ①

AWM 9.8.0.

W/O:		WORK ORDER CHANGES					
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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

150



HandFXtube

Crosstubes Chemical Conversion

0.00

Memo

0.00

Hand Finishing Crosstubes

Chemical Conversion Coat as within 24 hours of bending and drilling

1 ~~0~~ - ANN 7-8-10

160



QC

Quality Control

QC3- Inspect Part Finish

0.00

Memo

0.00

2) 8/09/08/10

④ 1

170



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

2) 8/08/08/10

④ 1

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Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 	Outsource process - NDT per QSI038 4.1	0.00							
Outsource2	Memo	0.00							
Outsource process - NDT	Liquid Penetrant Inspection as per QSI 038 Issue P/O: <u>10194</u> LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order								
190 	Receive & Inspect for Damage & Mat'l Certs	0.00							
Packaging	Memo	0.00							
Packaging	Ensure copy of NDT results attached to work order.								
200 	QC5- Inspect part completeness to step on W/O	0.00							
QC	Memo	0.00							
Quality Control	Inspect for damage & ensure results are as per Dwg D212-664-241								

CL 09/08/11 ①

CL 09/08/11 ①

ML 09 08 12 ①

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Run Start



Approvals: Process Plan: Date: Tooling: Date:

Stop



QC: Date: SPC (Y/N): Date:

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

210



SprayPaint

Spray Painting

Spray Painting per QSI005 4.2
SprayPaint

0.00

Memo

0.00

1-Prime inside and outside crosstube as per QSI 005 4.2
2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME:

Start Time: 10.00

Finish Time: 11.00

PAINT:

Start Time: 3.30

Finish Time: 4.30



mm 09-08-11 ①

220



QC

Quality Control

QC14- Inspect Spray Paint

0.00

→ 25 09-08-12

Memo

0.00

Then, Wrap in plastic bag to protect from scratches

W/O:		WORK ORDER CHANGES					
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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

230

0.00



Crosstubes

Crosstubes

Memo

0.00

Crosstubes

*****clamps to be installed per DSI
9445*****

1- Lightly scuff the bonded area using a 320 grit sand paper and clean the area
with 41058 wash 'n' wipe

2-Install supports with magnobond as per QSI 015 Adhere for for 12 Hrs
A/R 6398 Magnobond Batch: 111 249
Expiry Date: 10-08-01

3-Install clamps as per Dwg D212-664-241 and DSI 9445. Torque clamps to 80-
100 in lb.

07-08-12

08 13 ①

240

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

2) 8/2/13

②

φ

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
09.08.12	230	Tooling in correct location for installation of Supports for D212-664-2013 cross tubes. 27.50" spacing. table mod. incl.	<i>[Signature]</i> 09.08.12 -13			<i>[Signature]</i> 09.08.12 P-1 09.08.12	<i>[Signature]</i> 09.08.14	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

250

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

1 MD 09/08/13

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

=> S 09/08/13



φ

270

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D212-664-201

Rev A

21

MD 09/08/13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Work Order ID 50827

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Item ID: D212-664-201B

Accept



Setup Start



Revision ID: A

Stop



Item Name: Crosstube Aft High,214

Start Date: 07/23/2009 Start Qty: 1.00



Cust Item ID:

Required Date: 07/27/2009 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursDraw
NumberDraw
Rev.Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

280

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

[Signature] 05-08-14
mf 09-08-14

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Picklist Print

July 23, 2009 6:45:19 AM

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Work Order ID: 50827

Parent Item: D212-664-201BRevA

Parent Item Name: Crosstube Aft High,214

Comments:

Start Date: 07/23/2009

Required Date: 07/27/2009

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D212-664- 201TRNRevC		Manufactured	No			110	Each	2.0000	1.0000			


Crosstube Turning Detail

Warehouse Loc Qty Loc Code

Location

Main Warehouse

FG 2

46386 1

46387 1

D3595-063-530RevA Manufactured No



RUBBER CUSHION

230 Each 162.0000 2.0000



Warehouse Loc Qty Loc Code

Location

Main Warehouse

ST 162

40780 2

44998 48

50030 112

B46387 DP9-86

ST
09-08-12

14

46386

W/O:		WORK ORDER CHANGES					
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Parent Item Name: Crosstube Aft High,214

Start Date: 07/23/2009

Required Date: 07/27/2009

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D2940-1RevB		Manufactured	No			230	Each	74.0000	2.0000			



Support



Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

ST

74

24367

4

25594

2

41536

10

41870

20

45203

18

47748

20

85 09.08.12

x2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Comments:

Start Date: 07/23/2009

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Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	--------------------------	---------------	----------------	--------

MS21920-28

Purchased

No

230

Each

150.0000

4.0000



Clamp(per MIL-DTL-8783C)

Warehouse
Location

Loc Qty

Loc Code

OFFSHORE

FG

5

105884

5

Main Warehouse

ST

145

106864

5

108466

9

108847

7

109181

14

109965

10

111281

50

111734

50

85 09 08 12

4 x 4

D3428-1RevA

x1

Manufactured

No

250

Each

18.0000

1.0000



Placard

Warehouse
Location

Loc Qty

Loc Code

Main Warehouse

ST

18

47310

8

48359

10

1x 47310 mp 09/08/13

July 23, 2009 6:45:19 AM

Shop Packet Print

Page 3

W/O:		WORK ORDER CHANGES					
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Parent Item: D212-664-201BRevA

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Comments:

Start Date: 07/23/2009

Required Date: 07/27/2009



Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
MS21042L6 <i>X6</i>		Purchased	No			250	Each	779.0000	6.0000			
												
Nut												

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	779	
105077	22	
110002	257	
111548	100	
111578	400	

6 X 110002 MP 09/08/13

AN960JD616 <i>A6</i>		Purchased	No			250	Each	398.0000	18.0000			
												
Washer												

<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
ST	398	
107242	3	
107959	6	
109371	8	
110704	23	
111193	18	
111607	340	

18 X 111607 MP 09/08/13

W/O:		WORK ORDER CHANGES					
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Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN6-40A  Bolt		Purchased	No			250	Each	31.0000	4.0000			

Warehouse
Location

Loc Qty

Loc Code

Main Warehouse

ST

31

111424

31

4 x 111424 MD 09/08/13

AN6-41A  Bolt		Purchased	No			250	Each	67.0000	2.0000			
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Warehouse
Location

Loc Qty

Loc Code

Main Warehouse

ST

67

109371

17

111605

50

2 x 109371 MD 09/08/13

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Shop Packet Print

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DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

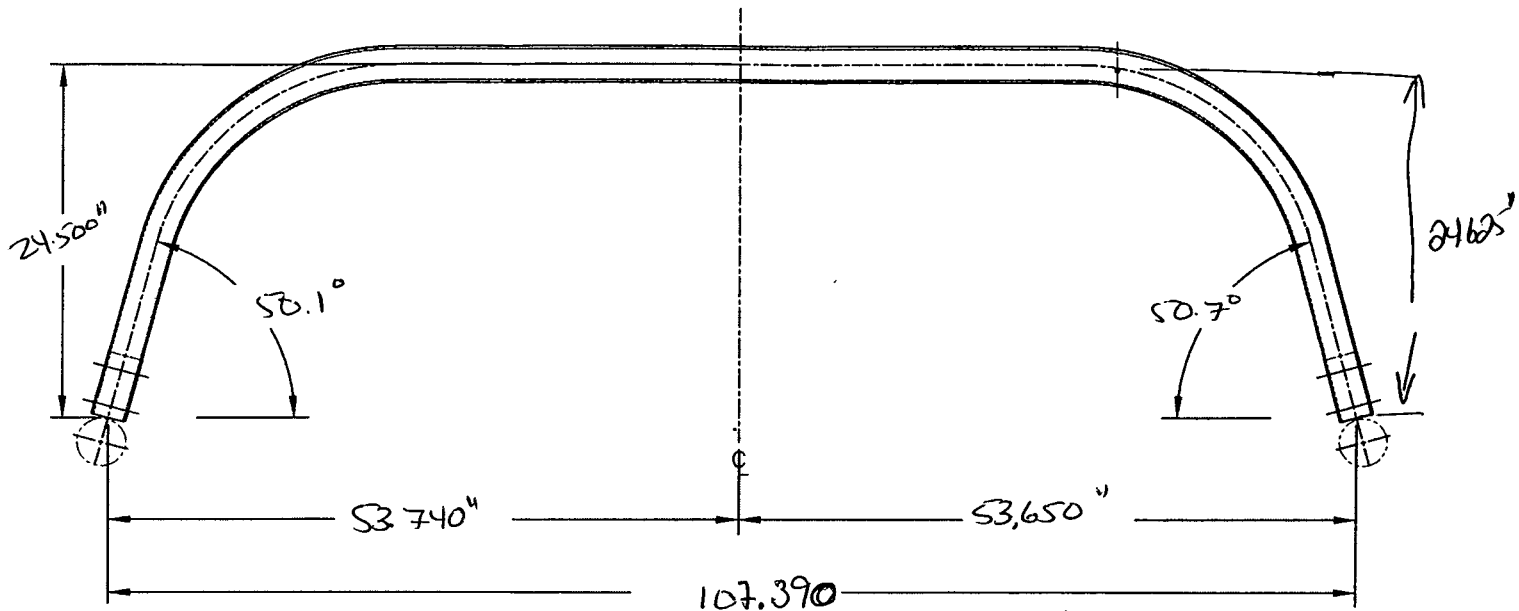
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DART AEROSPACE LTD		Work Order:	50827
Description: Crosstube High Aft (205/212)		Part Number:	D212-664-201
Inspection Dwg: D212-664-241 Rev: C		Page 1 of 1	

Required Dimension	Min	Max
Height	24.17	24.43
1/2 Span	53.59	53.85
Angle	49	52
Total Span	107.18	107.70



Comments
→ Z Eric Dawing measured the tube 8/9/06
Tube fits in jig. Acceptable 1/9/08.06



QC15 Inspection	<i>[Signature]</i> 09.08.06
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	07.05.08	Dimensions updated per Dwg rev. C	KJ/JLM	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action *Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
09.08.06	130	Tube bent high	 09.08.06 per QS/042	Tube fits in jig. Acceptable			 09.08.06 per QS/042	

NOTE: Date & initial all entries

DART

DESIGN <i>PH</i>	DRAWN BY <i>PH</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>J</i>	APPROVED <i>[Signature]</i>	DRAWING NO. D212-664-241	REV. C SHEET 1 OF 3
DATE 07.03.08		TITLE CROSSTUBE ASS'Y (205/212 HI AFT)	SCALE NTS
A	00.12.12	NEW ISSUE	
B	05.02.04	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	
C	07.03.08	REMOVE -1009 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	

RELEASED
07.04.24 *P*
PER ECN 089**DEO ATTACHED***12-10-08
12.06.08
X*

Qty	Part Number	Description
X	D212-664-241	CROSSTUBE ASSEMBLY (205/212 HIGH AFT)
1	D6006-129	CROSSTUBE
2	D2940-1	SUPPORT
4	D3595-063-530	RUBBER CUSHION
4	MS21920-28	CLAMP (OR MS21920-30)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947- 100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 2) MATERIAL: MANUFACTURED FROM D6006-129
FINISHED LENGTH = 124.36 ± 0.020
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 10) INSTALL MS21920-28 CLAMPS WITH D3595-063-530 RUBBER CUSHIONS TO SECURE D2940-1 SUPPORT ON TOP SIDE OF CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT
NOTE: MS21920-30 CLAMPS CAN BE USED TO ACCOMMODATE VARYING DIAMETERS. ENSURE THERE IS A MINIMUM OF 1.5 THREADS IN SAFETY ON THE NUTS.
- 11) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB.

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

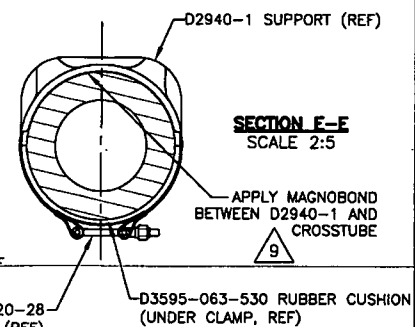
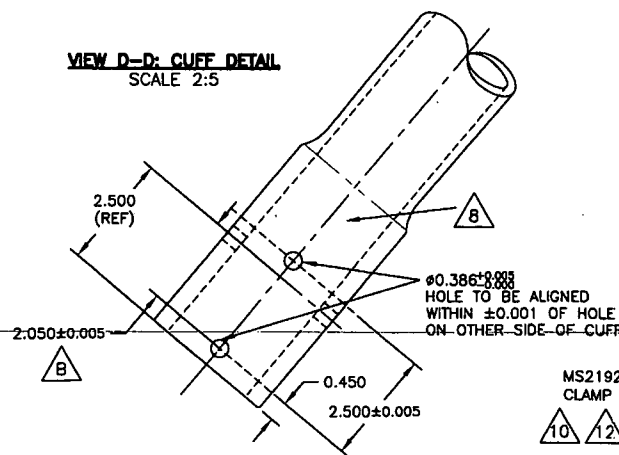
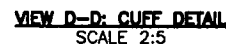
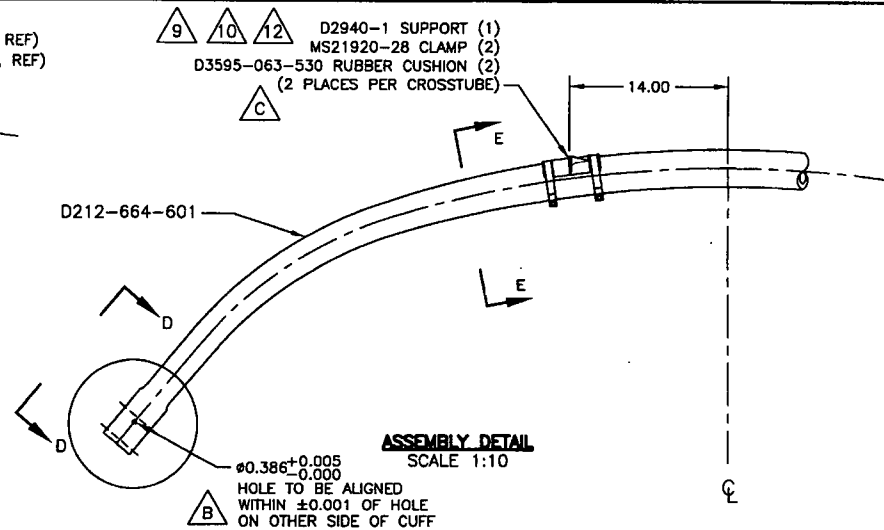
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

W1050627



DEO ATTACHED

DART AEROSPACE LTD.
HAMMERTREE, ONTARIO, CANADA

TITLE	SCALE
CROSSSTRE ASS'Y (205/212 HI AET)	1:10

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

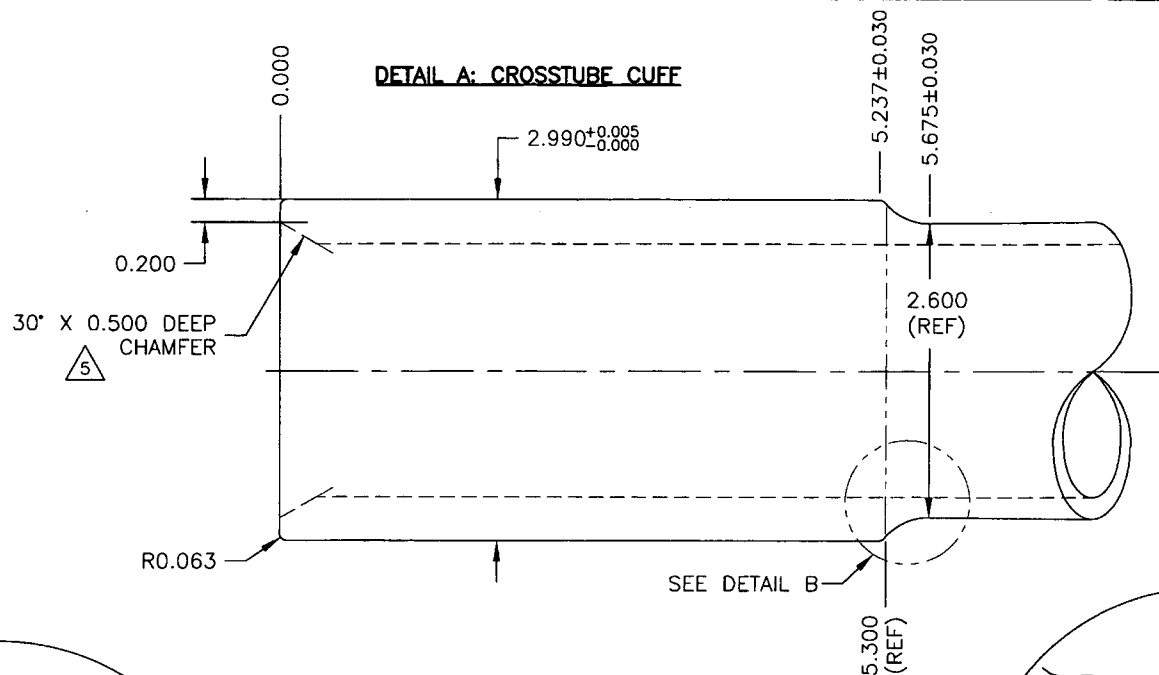
NOTE: Date & initial all entries

RELEASED
07.04.14
PER ECH 889

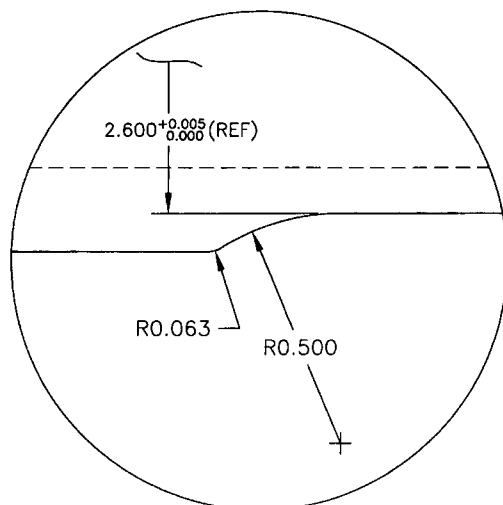
DEO ATTACHED

wro 50827

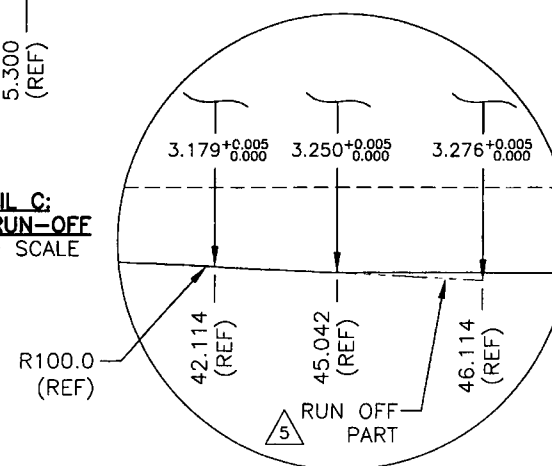
DETAIL A: CROSSTUBE CUFF



**DETAIL B: CUFF
TRANSITION
SCALE 4:1**



**DETAIL C:
TAPER RUN-OFF
NOT TO SCALE**



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DESIGN

CHECKED

DATE

07.03.08

DRAWN BY

APPROVED

DART

DART AEROSPACE LTD.
WARRICKBURY, OXFORD, CANADA

DRAWING NO.
D212-664-241

TITLE
CROSSTUBE ASS'Y (205/212 HI AFT)

REV. C

SHEET 3 OF 3

SCALE

1:1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DRAWING NO. D212-664-241	TITLE CROSSTUBE	REV. C	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D212-664-241-C-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>UP</i>	CHECKED <i>RT</i>	MFG. APPR. <i>ER</i>	APPROVED <i>MD</i>	DE APPR. <i>RT</i>			
DATE 09.05.01	DATE 09.06.15	DATE 09.06.15	DATE 09/06/16	DATE 09/06/16			

CHANGE:

ADD THE FOLLOWING CROSSTUBE ASSEMBLY:

Part Number	Description
D212-664-241B	CROSSTUBE ASSEMBLY (214 HIGH AFT)

THE D212-664-241B CROSSTUBE HAS THE SAME PARTS LIST AS THE D212-664-241 CROSSTUBE. HOWEVER, INSTALL THE SUPPORTS AS SHOWN IN FIGURE 1 OF THIS ENGINEERING ORDER. THE NEW KIT IS OTHERWISE ASSEMBLED PER THE D212-664-241 CROSSTUBE.

RELEASED
09/06/22 *MD*

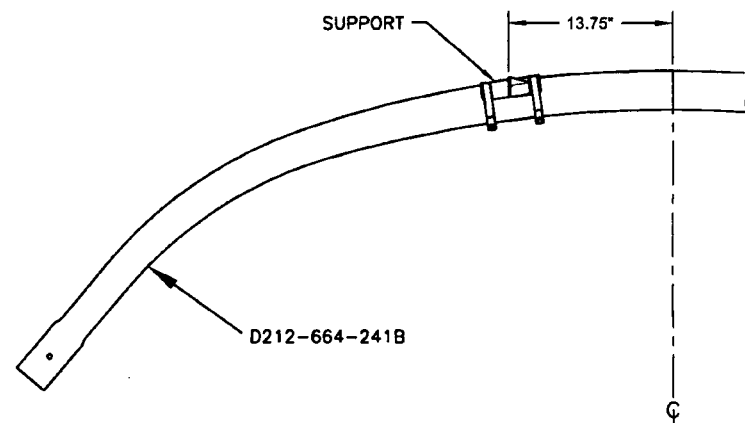


FIGURE 1 - SUPPORT INSTALLATION

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



LIQUID PENETRANT TEST REPORT

P- 14945

CLIENT	DART AEROSPACE	DATE	AUG-10-2009	PAGE	1	OF	
ATTENTION	LINDA CHANTAL	ACUREN JOB No.	188-09-001484	TIME	AM	<input checked="" type="checkbox"/>	PM <input type="checkbox"/>
ADDRESS	1270 ABERDEEN ST. HAWKESBURY ON. K6H-1K7	PO/VO No.	10194	WORK LOCATION	HAWKESBURY		
PROJECT	F.P.I. ON MACHINED PARTS - AND CROSS TUBES			ACCEPTANCE STD.	ASTM 1417	REV./DATE	2007
ITEM(S) EXAMINED	44 STUDS. 20 RAPPELS 7 CROSS TUBES. + 12 STUDS.						

JOB DESCRIPTION	PROCEDURE No. LT-0002	REV./DATE	TECHNIQUE No. LT-0002	REV./DATE
PART No.	MATERIAL STAINLESS STEEL THICKNESS 1/4" ALUMINUM			
SCOPE	WET FLOUORESCENT LIQUID PENETRANT INSPECTION CARRIED OUT 100% EXTERNAL			

TEST DETAILS	
METHOD <input checked="" type="checkbox"/> FLUORESCENT <input type="checkbox"/> VISIBLE	<input checked="" type="checkbox"/> WATER WASH <input type="checkbox"/> SOLVENT REMOVABLE <input type="checkbox"/> POST EMULSIFIED
FAMILY BRAND MAGNAFLUX	BLACK LIGHT S/N 16459 OUTPUT > 1000 μ W/cm ² <input type="checkbox"/> AMBIENT < 2 fc
PENETRANT 2L 07 MINIMUM DWELL TIME 45 MIN.	LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER H2O MINIMUM DRY TIME > 10 MIN.	OTHER LAB NO
DEVELOPER SKD 52 MINIMUM DWELL TIME 10 MIN.	LIGHT METER S/N
DEVELOPER TYPE <input checked="" type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY	CAL DUE DATE DEC. 8 - 2009

TEST SURFACE	
SURFACE CONDITION <input type="checkbox"/> AS GROUND <input type="checkbox"/> AS WELDED <input type="checkbox"/> MACHINED <input type="checkbox"/> SHOT BLASTED <input type="checkbox"/> CLEAN BARE METAL	
SURFACE TEMPERATURE <input type="checkbox"/> < -4°C/ 20°F <input type="checkbox"/> -4°C/ 20°F TO 10°C/50°F <input type="checkbox"/> 10°C/50°F TO 52°C/125°F <input type="checkbox"/> > 52°C/125°F	

RESULTS- <input type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL	
14 PCS STUDS - W.O. 509 33 ✓	To BUFF AND EXAMINE - INDICATION
20 PCS STUDS - W.O. 507 21 ✓	
12 PCS STUDS - W.O. 509 32 ✓	
10 PCS RAPPEL - W.O. 509 67 ✓	
10 PCS RAPPEL - W.O. 509 68 ✓	
1 CROSS TUBE - W.O. 510 83 ✓	
1 CROSS TUBE - W.O. 510 84 ✓	
1 CROSS TUBE - W.O. 510 85 ✓	
1 CROSS TUBE - W.O. 508 73 ✓	
1 CROSS TUBE - W.O. 508 27 ✓	
1 CROSS TUBE - W.O. 508 00 ✓	To BUFF AND EXAMINE - INDICATIONS
1 CROSS TUBE - W.O. 508 26 ✓	
- 6 ITEMS TO EXAMINE AFTER BUFFING	
- OTHER PCS FOUND ACCEPTABLE TO STANDARD.	

Scope of Services
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES	
CLIENT REPRESENTATIVE	CHANTAL LAUDIE
TECHNICIAN (SIGNATURE):	Mike Johnston
NAME (PRINT):	Mike Johnston
CGSB LEVEL	SNT LEVEL
CGSB REG. No	CGSB REG. No